



For the Finest in
Data Transmission Equipment

28 Automatic SEND-RECEIVE SET

A Complete High Capacity Send-Receive Message Station with Tape Punch and Tape Reader Units . . . Designed to Serve as the Center of Data Processing and Message Transmission Systems.

Composed of a Teletype Model 28 Send-Receive Page Printer combined with your choice of any one of four tape punch units *plus* your selection of any one of four tape reader units.

PROVIDES FOR:

- 1 Direct interchange of transmitted data, recording information in printed page form
- 2 Punched tape as a by-product of transmission and reception . . . or high speed preparation of punched tape for subsequent transmission.
- 3 Automatic transmission of data under control of perforated tape utilizing a tape reader unit.

FIXED HEAD
SINGLE CONTACT
TRANSMITTER-
DISTRIBUTOR

PIVOTED HEAD
MULTI-CONTACT
TRANSMITTER-
DISTRIBUTOR

FIXED HEAD
MULTI-CONTACT
TRANSMITTER-
DISTRIBUTOR

PIVOTED HEAD
& FIXED HEAD
MULTI-CONTACT
TRANSMITTER-
DISTRIBUTOR

TAPE READERS
see page 9

SEND-
RECEIVE
PAGE
PRINTER

NON-TYPING
PERFORATOR

TYPING
PERFORATOR

NON-TYPING
REPERFORATOR

TYPING
REPERFORATOR

TAPE PUNCHES
see page 5

TAPE
READER

TAPE
PUNCH

OVER 450 YEARS OF ACKNOWLEDGED LEADERSHIP IN DATA TRANSMISSION



Proven
Research
and
Development



THE NEED

As requirements for data transmission systems grew broader and more complex, it became evident that the potential of present equipment was too limited to keep up with increasing demands. Teletype equipment users everywhere suggested modifications and additions to accommodate the increased work load.

Over a period of years, the comments and suggestions of our customers have been compiled into a series of facts and analyzed. These facts pointed out the need for a new line of apparatus that would offer the following advantages:

- ★ Be a compactly integrated group of component units
- ★ Provide capacity for expansion of current functions to meet future needs
- ★ Operate at high speed
- ★ Have low maintenance cost
- ★ Provide for maximum continuous operation



THE ANSWER

From our evaluation of the market came the exacting engineering plan to which the new Teletype Model 28 Line of equipment is constructed.

The Model 28 Line of equipment embodies the creative engineering "know how" of over half a century of continuous Teletype Leadership in data transmission. It is a line of equipment designed to keep you abreast of the dynamic progress in business and industry . . . today . . . and for the challenging tomorrows to come. Not an interim line, but *the* answer in data

transmission equipment.

In the development of the Model 28 Line the page printer proved to be an immediate success for send-receive and receive-only operations. Next, the Model 28 send-receive page printer features were combined with variable tape punch and tape reader apparatus. This new arrangement of equipment in a single, compact, integrated unit is called the Teletype Model 28 Automatic Send-Receive Set. It offers a greatly increased range of communication applications.

Outstanding features of the Teletype Model 28 Automatic Send-Receive Set

- 1 Part of a complete line of apparatus employing standardized basic components in various combinations.
- 2 Expanded capacity for special functions through a "building block" design principle that allows for the addition of accessory units.
- 3 High flexibility of design permits future expansion, for needs beyond current visualization.
- 4 Extended lubrication and service periods assure a minimum of maintenance time.



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28 Automatic SEND-RECEIVE SET



The primary function of the Model 28 Automatic Send-Receive Set (ASR), is to serve as a complete high capacity message originating station for correspondence, data, sales orders, inventory information and other items of intelligence.

The ASR is made up of a group of basic component units. These include a keyboard, page printer, tape punch, tape reader, electrical service unit, console and motor.

The tape punch and reader units available for integration into the Model 28 ASR are listed below.

For Tape Reading (any one of the following)

FIXED HEAD
SINGLE-CONTACT
Transmitter-Distributor

PIVOTED HEAD
MULTI-CONTACT
Transmitter-Distributor

FIXED HEAD
MULTI-CONTACT
Transmitter-Distributor

PIVOTED HEAD & FIXED
HEAD MULTI-CONTACT
Transmitter-Distributor

For Tape Punching (any one of the following)

NON-TYPING
Perforator

TYPING
Perforator

NON-TYPING
Reperforator

TYPING
Reperforator

AUTOMATIC SEND-RECEIVE CONTROL

In actual operation, the operator can select, by means of a control knob conveniently located to the left of the keyboard, any one of three operating conditions to meet an immediate communication need.

In the **KEYBOARD** setting of the control knob, the ASR keyboard can be used to transmit messages directly to another station or group of stations. A record of the message is made available on the local page printer for monitoring, immediate processing or future reference.

In the **KEYBOARD-TAPE** setting, the ASR keyboard can be used to perform the dual operations of transmitting messages electrically while simultaneously perforating tape by mechanical means.

In the **TAPE** setting, the ASR keyboard can be used for direct mechanical perforation of tape at speeds in excess of 100 WPM. In this setting the page printer is available for the receipt of incoming messages or to monitor transmission from the transmitter-distributor.

In addition to the functions available in the three settings of the Automatic Send-Receive Control, there are virtually unlimited applications possible, by changing circuitry, to accommodate specific customer needs. Of major importance is the "Line-Test" switch (optional) which provides for both "local" as well as "on-line" operation of the ASR.

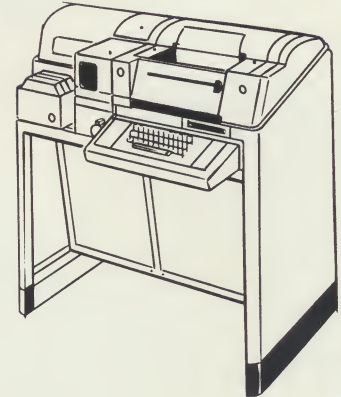
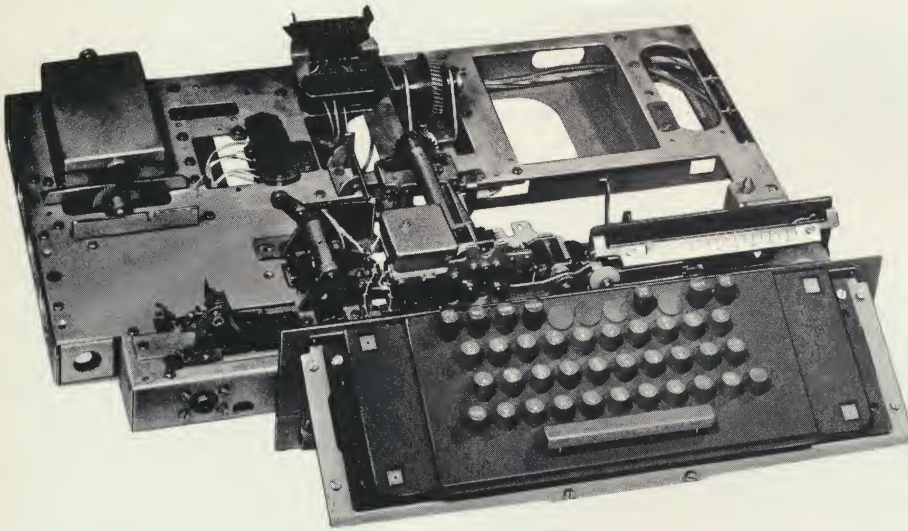


The ASR is designed to operate at today's, and future, line capabilities. Simple gear changes can reduce speeds from 100 WPM to standard lower speeds.

KEYBOARD UNIT



For the Finest in Printing Telegraphy



The Keyboard gives the Model 28 ASR centralized control for preparation and transmission of data. Light, uniform touch assured through instant, easy, key action. Modern keyboard designed at improved angle, increases operator output, comfort and efficiency. Keyboard arrangement is similar to typewriter. Top bank of red color keys reserved for non-typing functions such as power back-

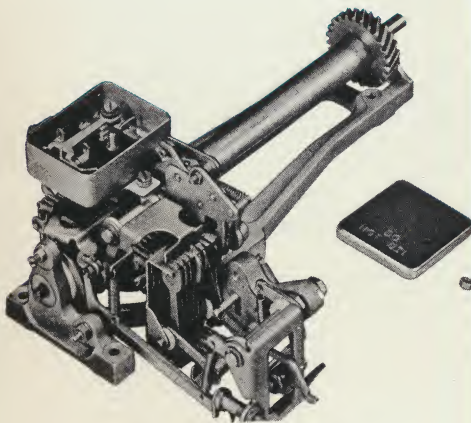
space for tape correction, automatic paper feed out, etc. Typing and perforating functions originate from operation of green color keys. Special key arrangements available when required. Provision on base for page printer, motor unit and any one of four tape punch units. Rubber mounting gaskets tightly seal the keyboard against dust and assure quiet operation.

Modern in design, this keyboard unit was developed especially for the new Teletype Model 28 Automatic Send-Receive Set.

28 Automatic

SEND

SIGNAL GENERATOR



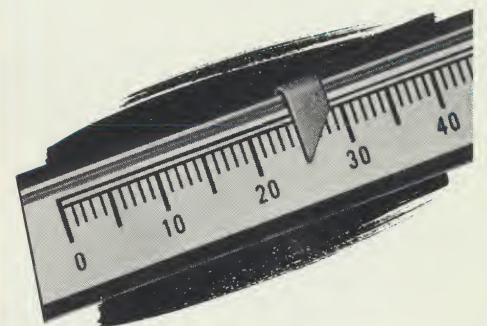
The signal generator is an advanced design single-contact unit, mechanically operated to transmit electrical impulses. Controls marking and spacing contacts for the sequential transmission of signals. Mounted in a metal box, protected against dust and shielded against creating radio interference.

TAPE BACK SPACE



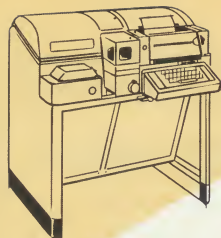
Power back space key for tape error correction. If an operator makes an error while perforating tape, the power-controlled back space mechanism can be used to return the incorrect character perforations in the tape back to the punch position. The error is cleared from the tape when the non-printing key "Ltrs." (letters), is depressed.

CHARACTER COUNTER

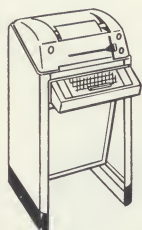


Used in conjunction with high speed tape perforation when not using the page printer for monitoring. Registers count of characters being perforated in relation to position they would occupy on a page printer line. This self-contained counter also operates the end-of-line indicator light to signal the end of printed line of page copy. The character counter is adjustable for a line length of 10 to 80 characters.

PRINTING UNIT



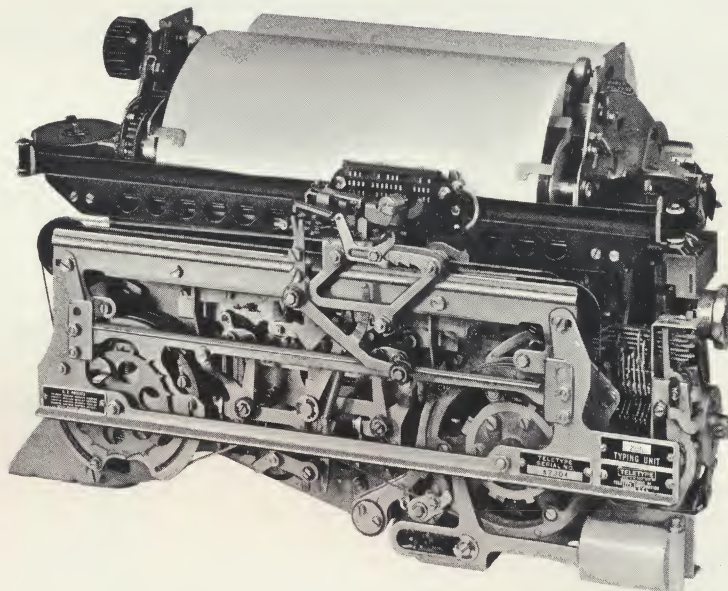
The Teletype Model 28 Automatic Send-Receive Set and the other proven Teletype equipment shown below utilize this printing unit in their operation.



The Teletype Model 28 Send-Receive Page Printer



The Teletype Model 28 Receive-Only Page Printer

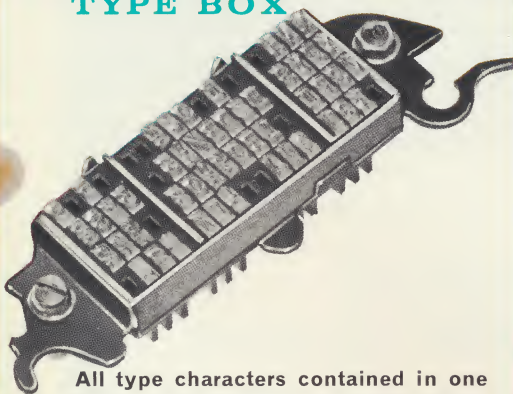


A new printing principle, featuring type box printing is employed in the Page Printer Unit common to the Model 28 Automatic Send-Receive Set, the Send-Receive and Receive-Only Units. The featherweight carriage is built for speed. Printer actually will operate in any position at a speed of 100 WPM. Assures dependable operation on planes, ships and in all mobile units. Copy

is more uniform because the same print hammer blow is applied to all characters . . . an important factor in multiple copy work. Straight course ribbon travel simplifies ribbon changing. Proven selector, all-steel clutches, versatile "stunt box" and new type box all contribute to making this printing unit an outstanding advancement in the recording of transmitted data.

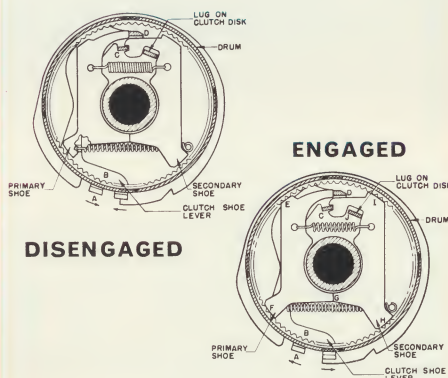
RECEIVE SET FEATURES

TYPE BOX



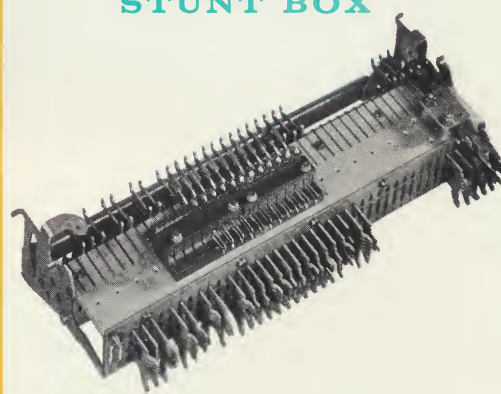
All type characters contained in one lightweight, compact assembly. Basic to the Model 28 Send-Receive, Receive-Only and Automatic Send-Receive Sets, is the type box shown in actual size above. Features built-in type alignment. Overscoring and underscoring are eliminated since each character is mounted on a separate pallet. Type box can be quickly removed without tools for cleaning. Any variety of type arrangements is possible and type arrangements can be readily changed.

CLUTCHES



Design incorporates advanced internal expansion principle which reduces wear and need for lubrication to a minimum. These long life, all steel, expansion clutches operate with exceptional stability and deliver high torque. Engagement is firm and uniform. At the end of each operating cycle the clutches disengage, reducing motor load to a minimum during periods of line idleness.

STUNT BOX



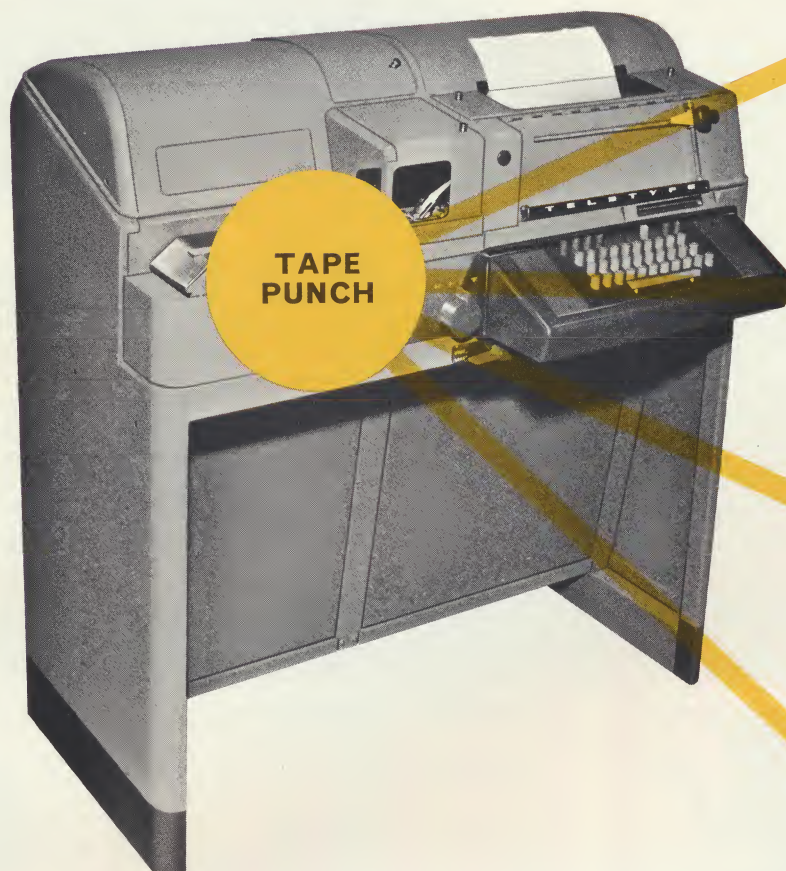
A sequential selector, self-contained within the printer unit. Exclusive with Teletype, the versatile stunt or function box is actually the "robot brain" of the Model 28 Page Printer. Responding to the stimuli of keyboard action or line signals, the stunt box can be used to control associated remote apparatus. Major functions of this dynamic unit are concerned with "selective calling" and "integrated data processing" applications.



28 Automatic SEND-RECEIVE SET

PERFORATORS and REPERFORATORS

FOUR VERSATILE TAPE PUNCH UNITS FOR YOU TO CHOOSE FROM

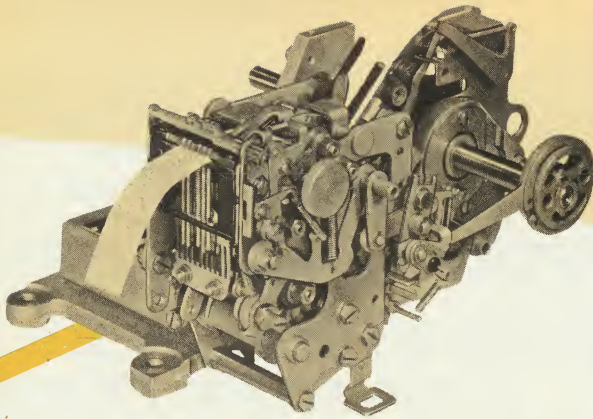


From this group of tape punches you can select the unit that best fills the needs of your particular communications requirements related to the storage and recording of information in 5-level coded tape. The perforators may be used for the preparation of tape locally from keyboard operation . . . the reperforators may be used for both tape preparation initiated locally or through signal reception. These units perforate standard $\frac{1}{16}$ " paper tape into 5-level chadless form.

Exclusive with Teletype, chadless tape eliminates chad disposal problems. It is called "chadless" tape because it is only partially perforated, leaving no punched-out waste or "chad". The code holes can be read in the same manner as "fully perforated" tape because the punched out portion is hinged and can be readily sensed by tape reading units. Operator errors made in tape

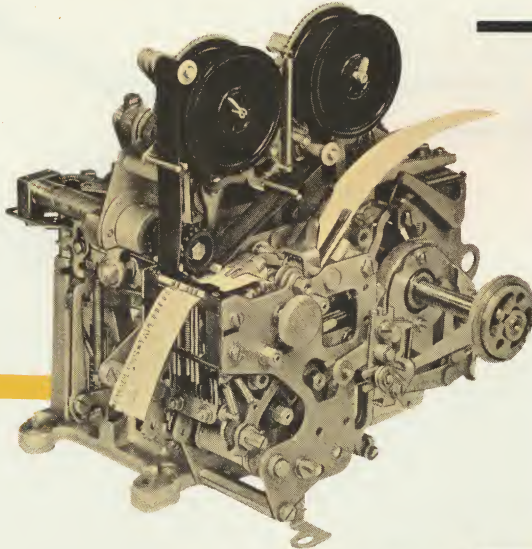
preparation can be corrected using the power controlled "Tape-Back Space" and "Letters" keys. In addition, editing of tape is possible with the line-test key in the "test," or local setting. This feature is especially important in conjunction with reperforators and their application to IDP procedures.

Consistent with the high standards established for the Model 28 Line of equipment, these precision engineered perforators and reperforators are developments resulting from the application of the latest techniques in tape punch manufacturing. Combined into the Model 28 ASR these units provide operational capabilities never before possible in composite sets. The variety of features available makes possible "customized" Teletype installations engineered especially for your needs.



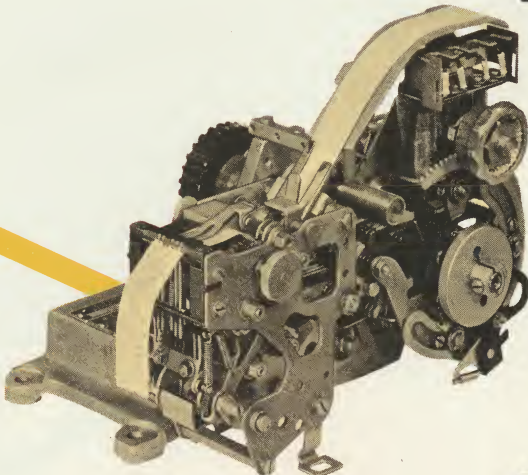
1 NON-TYPING PERFORATOR

This is a non-typing punch unit for preparing and storing information in 5-level chadless tape, through keyboard action. It is the basic punch unit from which the other models shown here have evolved. With the Model 28 ASR operating "on-line," at a rate of 100 WPM, tape can be prepared and simultaneously monitored on the page printer. Tape can also be perforated "off-line" at a higher rate of speed . . . in excess of 100 WPM . . . while the page printer, "on-line," is being used to receive incoming messages or monitor the local transmitter-distributor. Features include a highly simplified method of new tape roll insertion and threading.



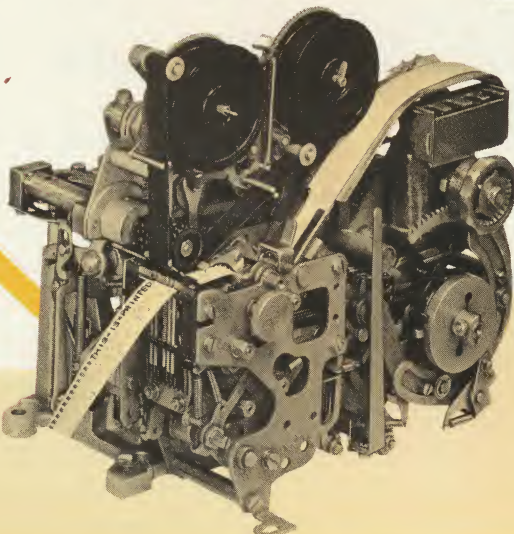
2 TYPING PERFORATOR

The addition of a typing mechanism to the tape punch unit permits the message to be printed on the tape, while being perforated in the tape. The resulting printed 5-level chadless tape itself can be checked for accuracy as it is being punched. This is of greatest importance in the "off-line" preparation of tape, because it permits the perforation and simultaneous monitoring of tape at a speed higher than the normal line rate of 100 WPM. Of further advantage, the page printer . . . not required for monitoring . . . can be used to receive incoming messages. Personnel untrained in reading code combinations can quickly identify the contents of printed chadless messages. A variety of type arrangements are available.



3 NON-TYPING REPERFORATOR

The addition of a receiving selector mechanism to the tape punch unit permits the perforation of 5-level chadless tape from line signals. "On-line," perforation of tape may take place with both transmission and reception of signals. "Off-line," this unit functions as a non-typing perforator, making possible perforation of tape at higher speeds through direct keyboard action. Of major importance in IDP applications . . . the Teletype Model 28 ASR reperforators may be used to prepare new tape from an existing tape being transmitted from a reader, while it is being viewed and edited on the local page printer.

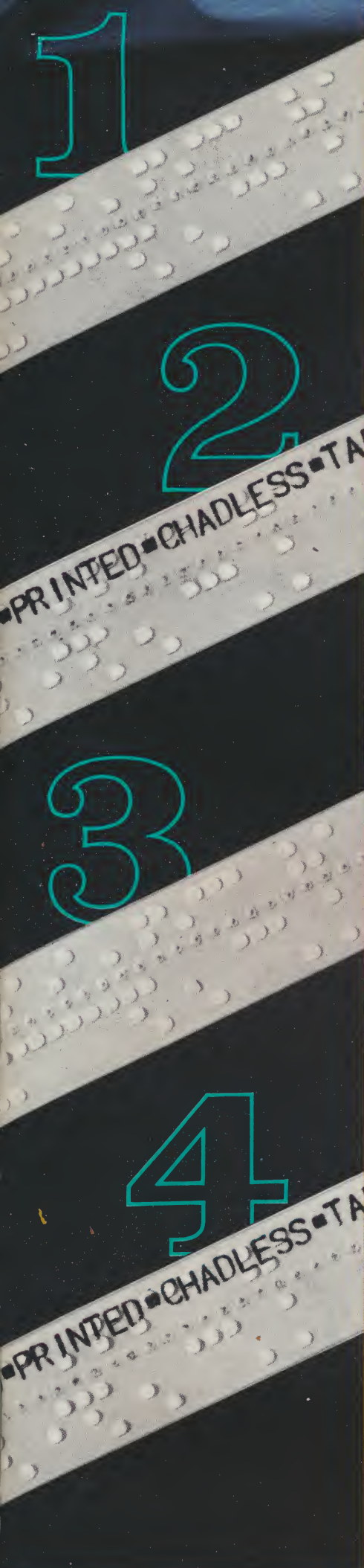


4 TYPING REPERFORATOR

The addition of a typing mechanism, to the tape punch equipped with a receiving selector, permits information from line signals to be printed on the tape, while being perforated in the tape. "Off-line," this unit will also function as a typing perforator for high speed preparation of tape. Personnel untrained in reading code combinations can quickly identify the contents of these printed chadless tapes.

• • • • •

Available also, is an auxiliary receiving-only typing reperforator that mounts under the left-hand dome of the console. This unit receives incoming messages in printed tape form while the ASR's primary tape punch unit is being used for tape preparation.



OUTSTANDING TAPE PUNCH

FEATURES

PUNCH UNIT

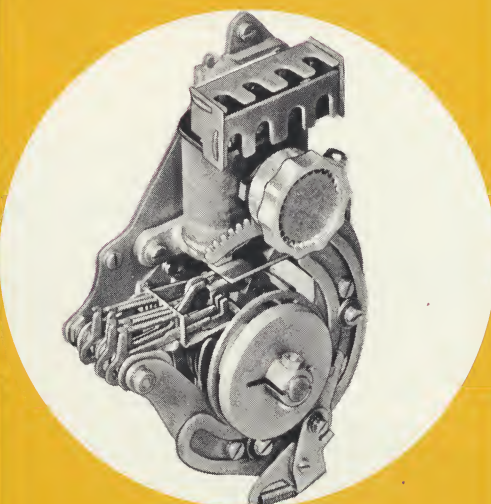
Mechanical action, direct from the keyboard or through linkages from the selector, drives punch pins for code perforation.

Chadless perforation eliminates chad disposal problems—provides clog-free operation. Power back space control from keyboard enables operator to correct perforation errors made in preparing tape for transmission. Electrical contacts are available for auxiliary functions. Reduced, simplified maintenance assured by longer lubrication intervals common to all equipment in the Teletype Model 28 Line.



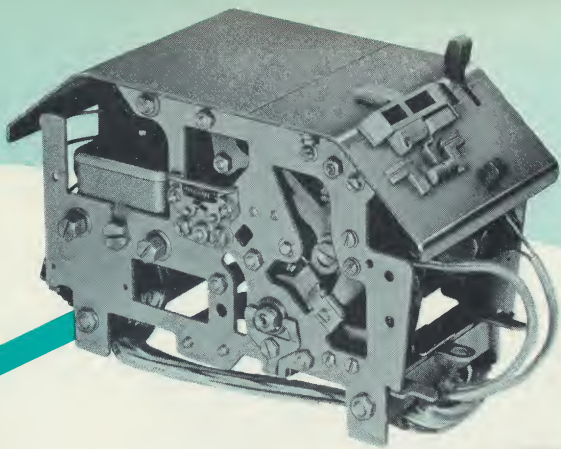
TYPING WHEEL

A compact printing mechanism in the typing perforator, and typing reperforator, incorporates a readily interchangeable, durable, typing wheel that prints individual characters corresponding to the perforated code holes. The printing mechanism is operated by the same mechanical action that sets up the punch pins for perforating the chadless code in the tape.



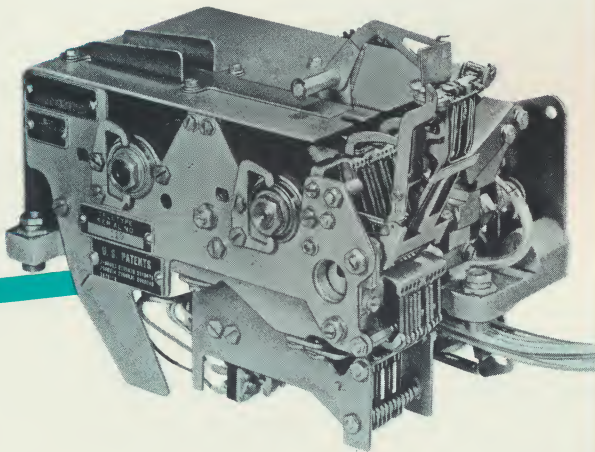
PROVEN SELECTOR

Common to the Model 28 ASR Reperforators as well as the page printer unit, is a compact selector that receives incoming electrical impulses and converts them to mechanical action. Proven in the field to operate efficiently at all standard line speeds—from a high of 100 WPM to all standard lower speeds. Features positive action self-locking range setter knob.



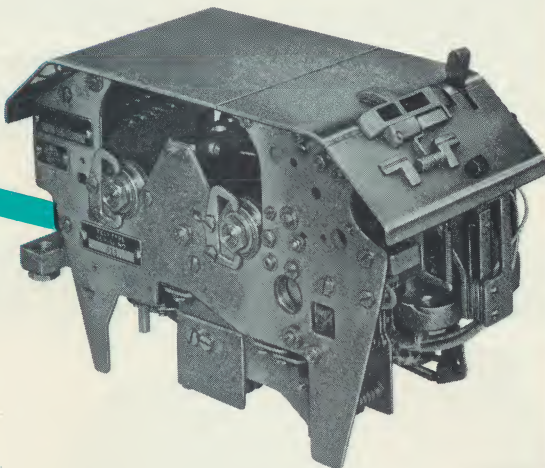
1 FIXED HEAD SINGLE CONTACT TRANSMITTER-DISTRIBUTOR

Consists of a stationary tape sensing head and a single-contact distributor. Senses code represented by the arrangement of perforations in 5-level tape. Converts this code to electrical impulses in the contact box assembly and automatically distributes them on a sequential basis, instantly forwarding information to one or more receiving points. Features all of the controls common to units with stationary transmitter sensing heads, including a 3-position manual control switch for "start," "stop," and "free-wheeling."



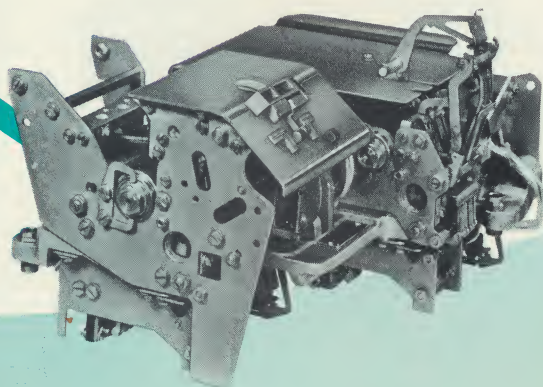
2 PIVOTED HEAD MULTI-CONTACT TRANSMITTER-DISTRIBUTOR

Features a pivoted tape sensing head and signal distributor, each capable of being actuated independently of the other by local or remote control. Always used in conjunction with a punching unit because the pivoted reader can move along the tape, read and transmit the last character punched. Principal application of this "climbing-up-the-tape" feature is in situations where punched information is to be transmitted in continuous tape form, without the need for tearing perforated messages from the punch head. As an accessory feature, special "customized" controls are available.



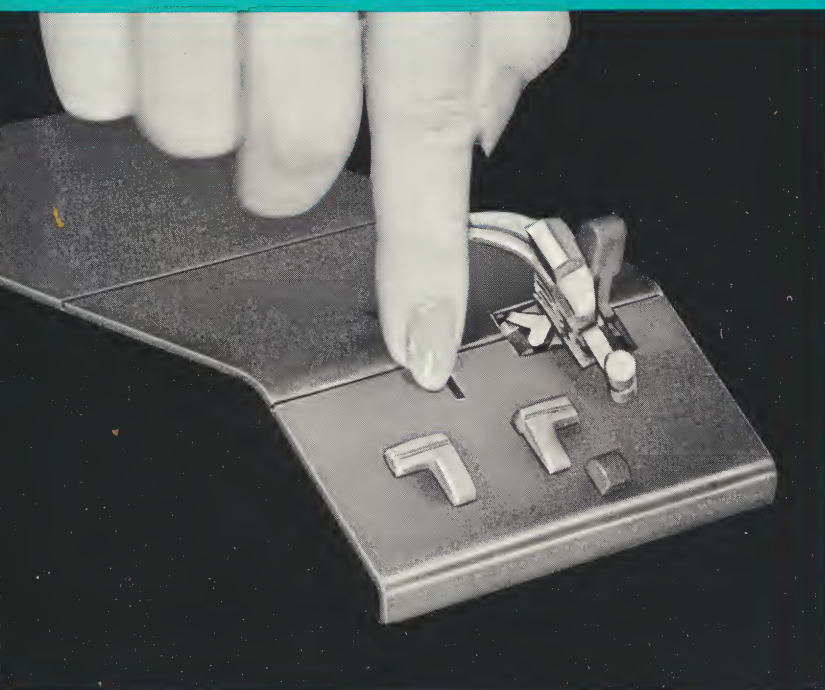
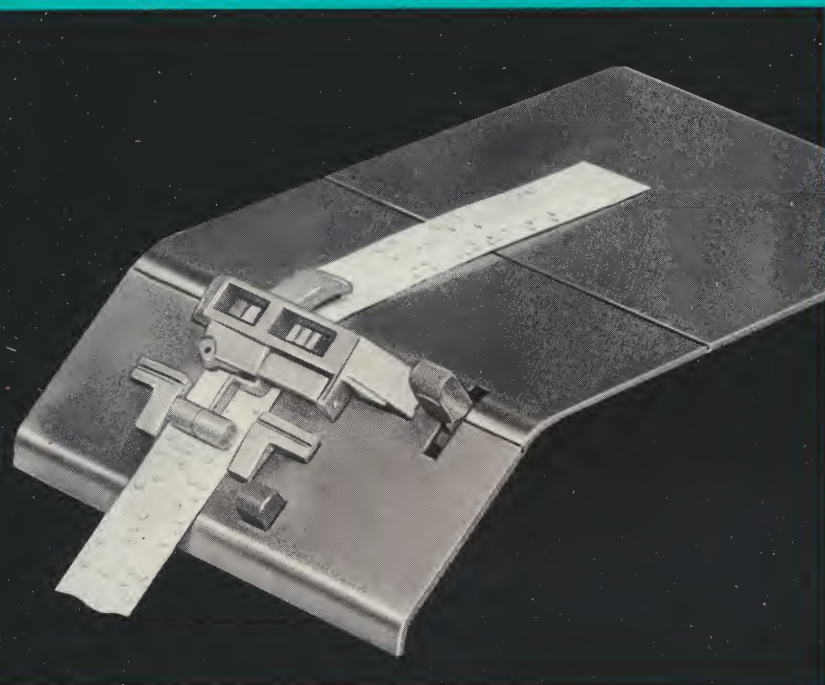
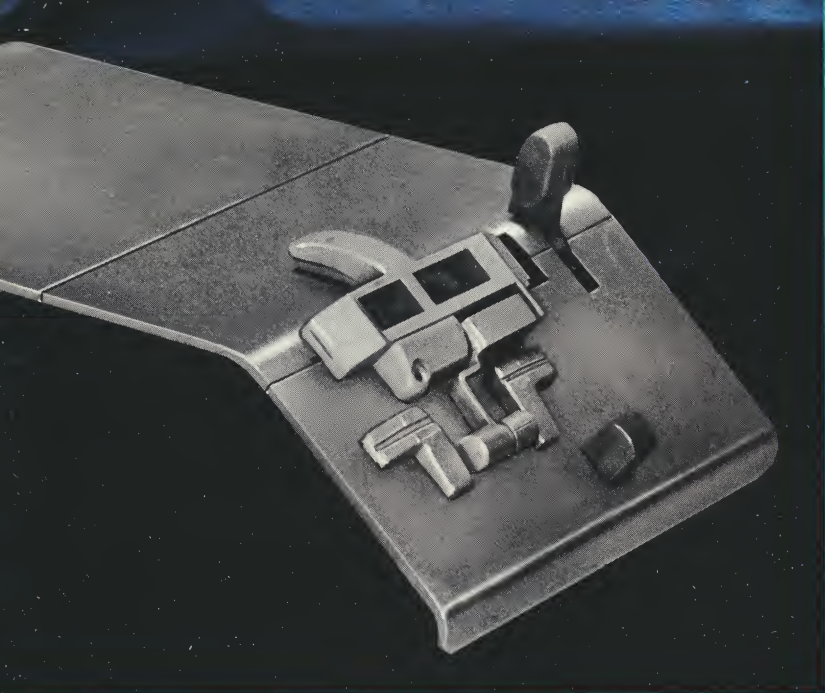
3 FIXED HEAD MULTI-CONTACT TRANSMITTER-DISTRIBUTOR

Identified by a stationary tape sensing head and a signal distributor, each capable of being actuated independently of the other by either local or remote control. Allows for the transmission of tape prepared locally on the Automatic Send-Receive Set tape punch unit, or from any outside source. Signals sensed in the transmitter portion can be relayed to the distributor section for sequential transmission "on-line" or forwarded as 5-wire output for operation of similarly wired business machines of all types. Input to the distributor can also be from any 5-wire external source for immediate conversion to sequential transmission on-line.



4 PIVOTED AND FIXED HEAD MULTI-CONTACT TRANSMITTER-DISTRIBUTOR

Combines two tape sensing heads (one stationary—the other pivoted) and a single signal distributor. The pivoted head transmitter section, enclosed in the Model 28 ASR, is in line with, and accepts tape directly from the punch unit. The pivoted head portion is designed to climb and sense the last character punched. The stationary or fixed gate transmitter is accessible externally for manual insertion of tape from any source. Primary use of this unit would be in Integrated Data Processing Systems where standardized information, stored in previously prepared tape, would be combined with variable information prepared on the punching unit.



OUTSTANDING

TAPE READER

FEATURES

MANUAL CONTROLS

3-position manual switch controls "start," "stop," and "free-wheeling." Once started, the tape feeds automatically. The hinged tape lid keeps the tape in contact with sensing pins. The hinged tape lid is controlled by a manually operated release lever.

EASY TAPE THREADING

By setting the control switch in position for "free wheeling" the tape feed wheel can be readily put in motion for easy tape insertion. Tape guide bars keep the tape in line for accurate operation. They are indexed at a point 6 characters in front of the sensing pins. The taut tape device keeps the tape flat and under proper tension.

AUTOMATIC CONTROLS

The end of tape or "tape out" sensing pin stops transmission automatically when the end of tape has been sensed. The taut tape device stops transmission when tape becomes taut.

DATA PROCESSING



One of the best reasons for selecting the Teletype Model 28 Automatic Send-Receive Set as the core of your data processing system is the fact that Teletype Systems are not limited to "local" operations.

- ★ The ASR will perform a majority of the off-line functions related to data processing . . . in addition:
- ★ The ASR may be used to transmit vital information on-line to a central location anywhere for evaluation and disposition.

A Teletype Model 28 ASR used in data processing systems needs no additional equipment to transfer information "on-line" to a receiving station.

In the Model 28 Automatic Send-Receive Set, "off-line" data processing procedures may be combined with "on-line" functions because of the compact arrangement of tape punch and tape reader apparatus with a send-receive page printer. This single composite unit performs *both* the "off-line" and "on-line" functions making it a complete, high capacity message origination station for data transmission and communications in general.

Since paperwork as such cannot be entirely eliminated, a certain irreducible minimum still must be moved and handled. Handling this "clerical lag" mini-

mum is where Teletype equipment combined with data processing procedures goes to work. With the Model 28 ASR—data is manually prepared *once*—automatically reproduced thereafter. Variable information can be easily inserted.

Many data processing systems have previously employed Teletype equipment only partially, for the storage of data or more commonly for the transfer of stored information from paper tape to multi-carbon forms.

Now, the Model 28 ASR combination of the send-receive page printer with tape punch and tape reader units, offers the opportunity for an unlimited number of applications in data processing, telemetering and computer transmissions. The increased versatility of the Model 28 ASR is accomplished through the high flexibility of basic equipment and accessories plus the utilization of the "common language" 5-level code in conjunction with adding machines, electric typewriters, check writing machines and many other business machines.

Every business organization should investigate the possibilities of reducing "clerical-lag" with the Teletype Model 28 ASR—your best choice, as the heart of a data transmission system that will get your data processing tasks accomplished, with maximum efficiency.

OTHER BASIC UNITS

For
Dependable
Performance

TELETYPE
model

28

THE
LEADERSHIP
LINE

CONSOLE

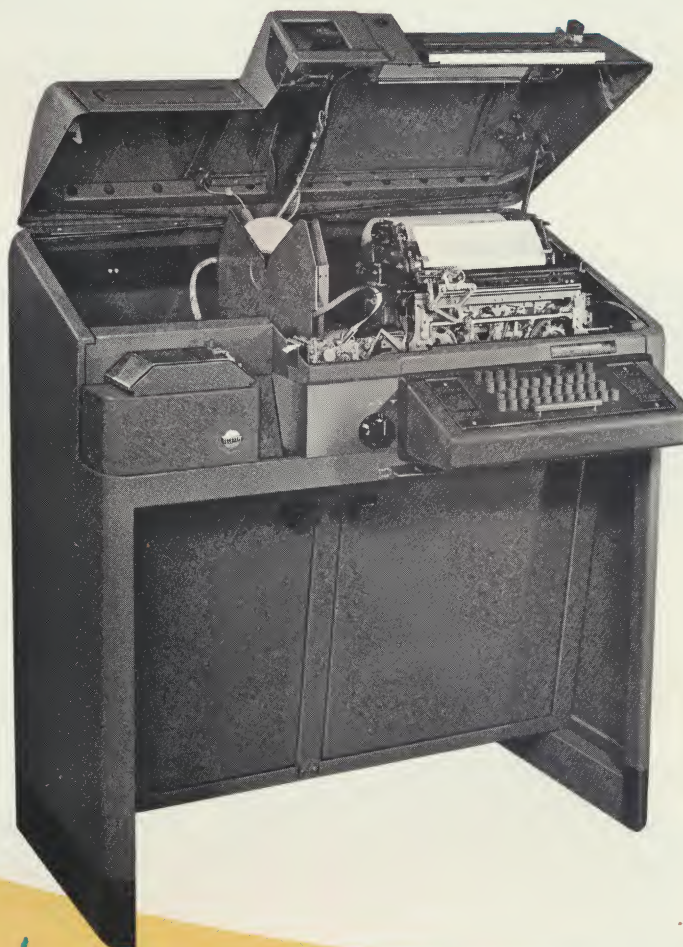
The console combines individual units into a complete set, provides terminals for attachment of power and signal lines, internal circuits, and control equipment. Copy illuminating lamps are provided in page printer, tape punch and tape reader areas. Also included is a margin indicator lamp. Angle of laminated glass in windows of cabinet positioned to prevent glare and distortion. Cabinet measures approximately 36 inches wide, 39 inches high and 18½ inches deep (keyboard extends an additional 4½ inches.) Feet for leveling cabinet included. Facilities are available for mounting of accessories.



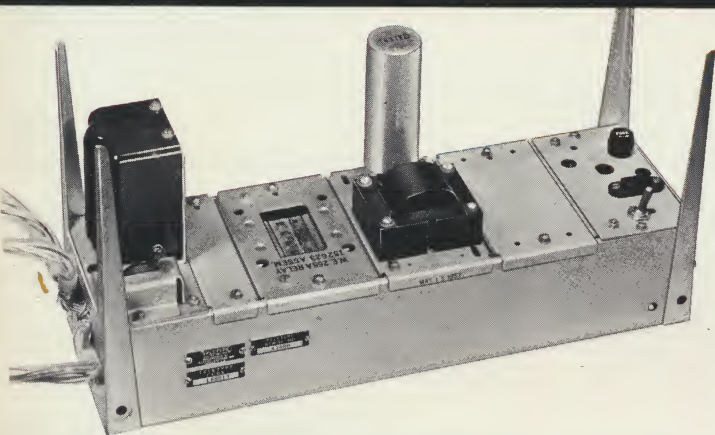
Cabinet hood swings open for easy maintenance.

Small doors in dome provide easy access for replacing expendables such as tape supply, ribbon and page printer paper.

Attractive, compact, console cabinet houses entire Model 28 ASR unit, is designed to harmonize with every decor. Available in gray-green wrinkle and other attractive finishes.

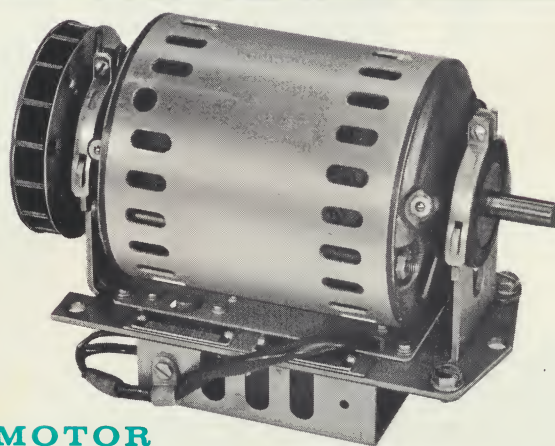


28 Automatic SEND-RECEIVE SET



ELECTRICAL SERVICE UNIT

Essentially a chassis for the mounting of line relay, motor control, rectifier, fuses and light power switches. Provides mounting for accessory units. Highly flexible, sub-assemblies of the electrical service unit may be positioned in a variety of arrangements for various applications. The chassis of the electrical service unit is located to the rear of the page printer unit.



MOTOR

Designed especially for the Teletype Model 28 Line of equipment. Dependable, fan cooled motor. The motor that best meets the exacting requirements of mechanical design specified by Teletype engineers. Provides adequate operational power margin under extreme climate conditions. Special optional motors are available for specific customer needs.

MODEL 28 ASR ACCESSORIES

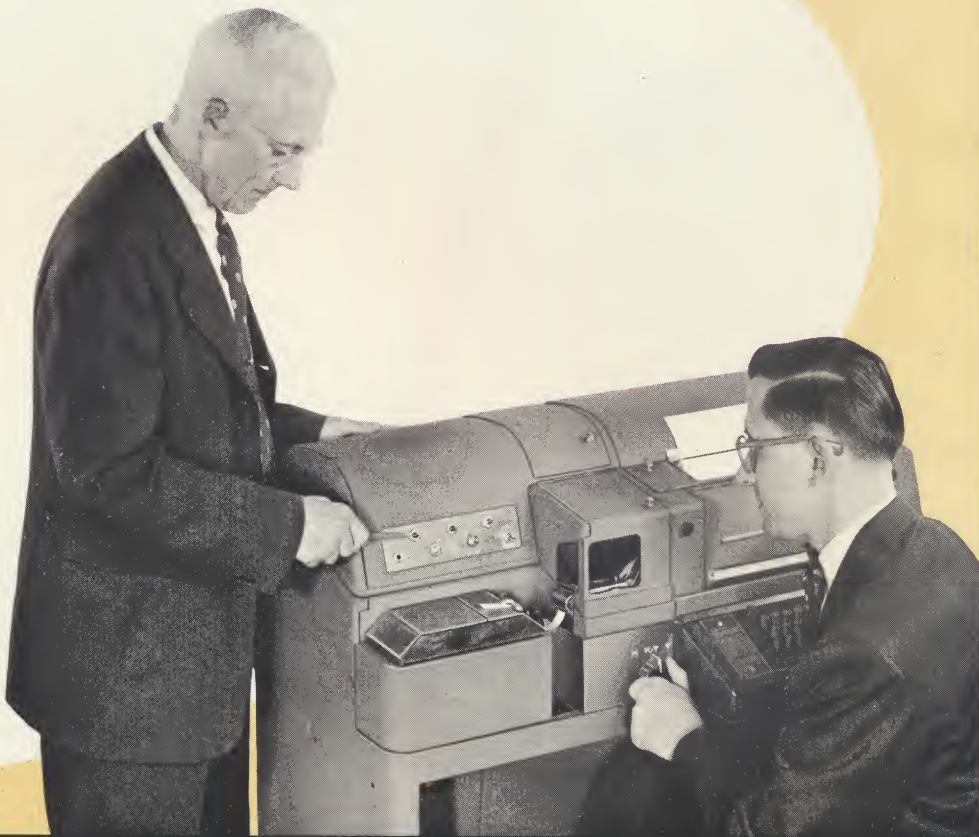
SPECIALIZED *Custom* PLAN

The multi-purpose versatility of the new Teletype Model 28 ASR dramatically displays the "building block" principle around which the ASR is conceived. This plan allows for the ready addition or substitution of component units and accessory assemblies. Many variations of the basic units offered, combined with optional apparatus, make for a "personalized" custom engineered installation to meet particular user needs. This flexibility of the Model 28 ASR provides new opportunities for you to introduce, adapt and expand the applications of this equipment within your present communications plan.

Optional special accessory control panel illustrated in view at right.

APPLICATIONS UNLIMITED

The utilization of standard and custom accessories broadens the application horizons of the ASR to an unlimited degree. Teletype equipment engineers will be pleased to help you to most efficiently apply the Model 28 ASR to your communication problems. Why not contact Teletype today!



SIGNAL LINE RECTIFIER



Converts alternating current to direct current for the signal line circuit. A number of Teletype Rectifiers are available as optional equipment for converting current of varied voltage and frequency to either 115-120 Volts D.C. with current capacities of .200, .600, .800, .900 or 2.000 amperes.

UNIT AIDS TO "IDP"

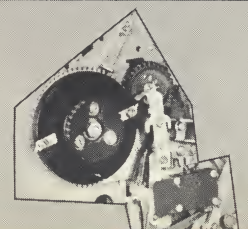
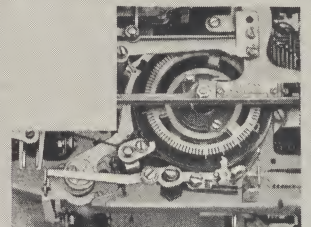
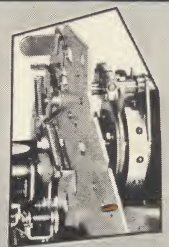
A Sprocket Feed Platen—Has projecting pins to engage perforations in continuous multi-copy business forms to keep them in accurate register.

B Horizontal Tabulator—Speeds typing and improves accuracy.

C Form Feed-Out Mechanism—When typing is completed, this mechanism will feed out the form automatically, on signal reception or transmission, bringing the next form up to the first printing line.

In addition, optional equipment is available for feeding forms into the ASR cabinet, and for collecting completed forms. A variety of accessory devices to facilitate the handling of paper and tape are available.

These include an offset copy holder, single or multi-level paper tray and others.



28 Automatic

SEND-RECEIVE SET



TELETYPE
CORPORATION SUBSIDIARY OF Western Electric Company

TELETYPE
model

THE
LEADERSHIP
LINE

**Designed to Serve as the Center of Every Data
Processing and Message Transmission System**

For the Finest in
Data Transmission Equipment

The experience and skill developed through years of continuous Teletype leadership in data transmission have gone into the perfection of the Model 28 Automatic Send-Receive Set. This composite set is made up of versatile units that will provide dependable, smooth operation with all of the reliability proven by the other equipment in the Model 28 Line. Simplicity of adjustments, ease of operation plus reduced maintenance time and costs are making this equipment the first choice in data transmission everywhere. Teletype Model 28 equipment is designed to remain current and adaptable even in an era where rapid obsolescence may be commonplace. Why not find out how this equipment can serve your needs by contacting Teletype today!

POWER REQUIREMENTS

Standard Synchronous Motor Unit 135 Watt, 115 Volts, 60 Cy. A.C. Optional motors are available for specific customer requirements. D.C. power source required for signal line operation, clutch magnets, etc.
(See Rectifier Reference, page 14)

DIMENSIONS

Height 39", Width 36", Depth 18½" (less keyboard)
Keyboard extends 4½"

WEIGHTS

Total Weight, Automatic Send-Receive Set—Approx. 260 lbs.
Domestic Shipping Weight—Approx. 530 lbs.
Export Shipping Weight—Approx. 600 lbs.

FINISHES

Available in gray-green wrinkle and other attractive finishes.



Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications systems.

FOR FURTHER INFORMATION, Contact:



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CORPORATION SUBSIDIARY OF Western Electric Company

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